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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,674	05/09/2001	Akhileswar Ganesh Vaidyanathan	CL-1666USNA	3257

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EXAMINER
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LIN, JERRY

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/851,674

Applicant(s)

VAIDYANATHAN ET AL.

Examiner

Jerry Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 35-53 and 66-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 35-53 and 66-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Applicants' arguments, filed January 31, 2005, have been fully considered and they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

#### ***Status of the Claims***

Claims 1-34 and 54-65 are cancelled.

Claims 35-53 and 66-68 are pending.

Claims 35-53 and 66-68 are rejected.

#### ***Oath/Declaration***

In view of the papers filed December 17, 2004, the inventorship in this nonprovisional application has been changed by the deletion of Dennis John Underwood.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

#### ***Drawings***

The drawings were received on December 17, 2004. These drawings are accepted.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 35-53 and 66-68 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This rejection is reiterated from the previous office action and newly applied to new claim 68.

The method of claims 35-53, which are methods for discovering one or more patterns in a set of K sequences of symbols or methods of forming a (k+1)-tuple table, appear to be methods drawn entirely to data manipulation, since they do not clearly require any steps involving physical manipulation, and they do not produce results that are concrete, tangible and useful. See MPEP § 706.03(a) and §2106. In addition, data structures recited in claims 66 and 67 are descriptive material that is non-functional, and thus the computer readable medium containing data structures is non-statutory. See MPEP §2106(IV)(B)(1). This rejection and its reasoning is maintained from the previous office action.

The applicants have responded to this rejection regarding claims 35-43 by stating that the symbols themselves are “things,” and thus the organization and sorting of those “things” is an inherent physical result. Furthermore, the applicants state that these patterns of symbols represent information such as genetic information and that the

manipulation of data that represents information is sufficiently useful, tangible, and concrete to qualify as statutory subject matter under 35 U.S.C. §101.

All symbols are representations of something else. However, the mere fact that a symbols is a representation of something else does not sufficiently establish that claim is statutory. The MPEP §2106 (IV)(B)(2)(b)(ii) states:

No mathematical equation can be used, as a practical matter, without establishing and substituting values for the variables expressed therein. Substitution of values dictated by the formula has thus been viewed as a form of mathematical step. If the steps of gathering and substituting values were alone sufficient, every mathematical equation, formula, or algorithm having any practical use would be per se subject to patenting as a "process" under 101. Consideration of whether the substitution of specific values is enough to convert the disembodied ideas present in the formula into an embodiment of those ideas, or into an application of the formula, is foreclosed by the current state of the law.

Thus, although the applicant believes his symbol represents an undefined or some undescribed "thing," the applicant has created a mathematical algorithm that manipulates symbols for which any values may be substituted, even if they are in the form of a sequence. Although applicants suggest that one of the many forms of information may be genetic patterns, such a limitation does not exist in the claim, and thus the claim is drawn to an abstract conception of organizing patterns among abstract symbols. The instantly recited steps do not select any data, rather they merely organize, sort, and arrange data within a data structure. Thus the instant recited steps are not useful, tangible, and concrete and thus are not statutory.

In addition the applicants have responded to this rejection regarding claims 66 and 67 by stating that the data structure is useful in controlling a computer system to

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discover one or more patterns in k-sequences of symbols. Thus the claims are statutory. The Examiner disagrees. According to the MPEP §2106 (IV)(B)(1)(b),

“Where certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, are merely stored so as to be read or outputted by a computer without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the computer, then such descriptive material alone does not impart functionality either to the data as so structured, or to the computer. Such ‘descriptive material’ is not a process, machine, manufacture or composition of matter.”

In the instant claims, the limitations are descriptions of the data structures embodied on a computer readable medium. This is an arrangement of a set of data or as the applicant put it “an organization of information.” As written, the instant claims do not involve any process, which utilizes the arrangement of data. Although the claim does state the data structures are useful in controlling a computer system, this is only an intended use, not an actual statutory process. Thus the data structure constitutes descriptive material that is nonfunctional and thus non-statutory.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 35-53 and 66-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 35, step c) and claim 68 step c) provides for the use of w master offset tables, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 35, step (iii), claim 42, step (b), claim 44, step (A), and claim 68, step (c) (iii) recites the limitation "like symbols." It is unclear whether the Applicants use the term "like" to mean similar, or the same/identical, since no definition is disclosed in the instant specification. Applicants responded to this argument by stating that the Examiner was manufacturing an ambiguity where none exists. The Examiner disagrees. The dictionary definition of the term "like" is the same or nearly the same. In other words, the term like could mean the same/identical or similar. The Examiner's interpretation of the term "like" is correct. Although the specification uses the term "like" and "same" interchangeably, without a clear definition in the specification, the Examiner cannot import implied limitations from the specification into the claim.

Claim 43, step (b) requires "deleting rows from the k-tuple table whose suffix columns contain identical sets of difference-in-position values". It is unclear whether all the rows are deleted or only a subset of rows are deleted. It is also unclear whether all or only a subset of the suffix columns are required to contain identical sets of difference-in-position values. Although applicant applies his response concerning claim 35, step (c)(ii), that response does not address the merits of this rejection.

Claim 66 includes a plurality of data structures, a number w of data structures, a first additional data structure, and a second additional data structure. It is unclear from the claim, as it is written, the relationship among the various data structures. One interpretation is that the plurality of data structures is separate from a number w of data structures, which is separate from the first additional structure and second additional data structure. Another interpretation is that the plurality of data structures encompasses all the data structures that follow it.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Califano (US 5577249 A).

That data structure and its intended use, as in instant Claims 66 and 67, is considered to be "non-functional descriptive" material, for the reasons stated above and in the previous office action. Please see the previous office action for the excerpt from MPEP § 2106(VI) regarding non-functional descriptive material.

All limitations of this type of data structure are given no patentable weight, as they are non-functional descriptive material. The patentable weight given to the

limitations of claims 66 and 67 are limited to any type of computer-readable medium storing any type of data structure.

Califano teaches storing information associated with each sequence tuple as an array "data look-up structure" in a computer "hard disk" (a computer-readable medium) (see column 9, lines 14-30). Califano renders obvious the CRF containing the data structures of claims 66-67.

Applicants have responded to this rejected by stating that the data structures are not merely descriptive. The Examiner has responded to this argument above.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Lin whose telephone number is (571) 272-2561.

The examiner can normally be reached on 6:30-3:00, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, Ph.D. can be reached on (571) 272-0718. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JL

*Marianne P. Allen*  
MARIANNE P. ALLEN  
PRIMARY EXAMINER  
4/14/05  
AU 1631